

WELLCOME INSTITUTE LIBRARY	
Coll.	weTROmec
Call	<i>pam</i>
No.	WC 530
	1910
	B 78p

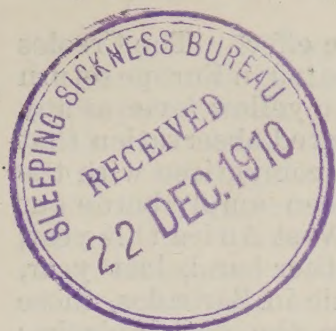
PROOF OF THE ENDEMIC ORIGIN OF
YELLOW FEVER IN WEST AFRICA

R. W. BOYCE

British Medical Journal, 1910, ii.



22200131422



PROOF OF THE ENDEMIC ORIGIN OF YELLOW FEVER IN WEST AFRICA.

BY

SIR RUBERT W. BOYCE, F.R.S.,

HOLT PROFESSOR OF PATHOLOGY, UNIVERSITY OF LIVERPOOL.

A LARGE amount of misconception exists upon the question of race susceptibility. It is sometimes supposed that the Latin races are the most susceptible to yellow fever, others think that the black races are immune. As a matter of fact, the most recent observations prove the accuracy of the old writers of authority upon yellow fever.

Writers of the eighteenth and nineteenth centuries concluded that no race was exempt, and that the apparent exemption in the black races, or in the Creoles, would readily disappear if these people went to Europe for a long stay. Modern observations prove that all races are susceptible, provided they come from climates where yellow fever does not exist. *That, in fact, it is entirely a question of immunity.*

Those living in a country where disease is endemic at a very early period in their life get an attack of the disease, which naturally confers a certain degree of immunity; later they may get subsequent attacks, but each successive attack is less serious; when manhood is reached the subject is in all probability completely immune.

It is this fact which explains why yellow fever has always been regarded as a *disease of newcomers*; it does not matter in the very least whether the newcomers are Scandinavians, British, Latins, Syrians, Mohammedans, Tartars, Chinese, blacks, or whites, the question alone is, Are they newcomers or not? Have they resided for a long term of years in a country where there is no yellow fever? It is an old observation that those blacks who resided in yellow-fever-free districts in the United States suffered from yellow fever when they reached a town where it was prevalent.

During the great yellow fever epidemic in Philadelphia blacks and whites were equally affected, and there are

numerous other examples to the same effect. The Creoles who leave the West Indies to be educated in Europe return as non-immunes, and are as liable to yellow fever as any European. It is an old and oft-repeated observation that the blacks of West Africa rarely, in comparison with the whites, get yellow fever; this has been amply borne out by the outbreaks of yellow fever in West Africa this year, and in all previous years. On the other hand, last year, 1909, during the yellow fever epidemic in Barbados, those who were most severely affected were the native blacks; yet these same blacks were the descendants of the African immunes. They had, therefore, in the meantime become non-immunes and susceptible, owing to the fact that yellow fever had ceased to be endemic in Barbados.

The fact that the poor native black inhabitants of Barbados were those most susceptible proved that yellow fever was not endemic. Similarly, the fact that the black races in West Africa do not exhibit, as a rule, the severe yellow fever symptoms, nor die from the disease like the whites, is proof positive that they suffer from a mild form of the disease which confers subsequent partial immunity. We know positively that neither their colour nor race confers immunity to yellow fever, and that they are as liable as the white European to become infected provided they have lived out of Africa for a long period. Vice versa, it is a well-known and an often proved observation that those whites who, being born in yellow fever countries, survive childhood grow up to be resistant to yellow fever. The old physicians said that they became acclimatized, whilst Creoles who left for a long stay in Europe became deacclimatized. We now know, thanks to the experimental observations of the American, Cuban, and Brazilian observers, that "acclimatization" means becoming infected by the *Stegomyia*, with a mild attack of yellow fever, which confers partial immunity. The word "acclimatization" of the eighteenth and nineteenth centuries means "immunization" to-day.

Applying, then, this reasoning to West Africa, we know that outbreaks of yellow fever have been far more frequent than is usually supposed during the last hundred years; we know that in this year, 1910, yellow fever broke out independently at four separate points in British colonies—namely, Freetown, Secondee, Axim, and Sawmills—and that inquiry on the spot failed to prove importation. We are forced therefore to conclude that the disease was, to use the phraseology of the older observers on the coast, a product of the place itself—in other words, that the disease was endemic. If, then, the disease is endemic—a view which is held by some British, German, and French authorities, who have investigated the disease upon the spot—it remains to ask, By whom is the virus of yellow fever maintained? From whom do the *Stegomyia* derive their infection? The answer to this can only be the black races; we know that the whites are not immunized in sufficient numbers. On the other hand, we know that the black races are very considerably immunized, or how

otherwise would they escape yellow fever? Then it is to the black races that we must look for the source of supply of the yellow fever virus; it is they who in childhood and adolescence, have the disease in a mild form, but, mild though it be, quite able to infect the *Stegomyia*, as the inoculation experiments of the American Commission proved. In other words, the black natives have the so-called mild or ambulatory form of yellow fever. These mild forms pass unrecognized amongst the natives, just as the sister disease, malaria, does, but, nevertheless, like malaria, it is there.

From analysis of all the facts, I can come to no other conclusion than that a very large proportion of the "remittent" and "bilious remittent" fevers of West Africa to-day are the well-known mild forms of yellow fever. The African native is as saturated with yellow fever as he is with malaria, and his escape from severe yellow fever and its very frequent occurrence amongst the whites is proof of this contention.

But it may be argued by some that, if yellow fever has been endemic in Africa so long, how comes it that all the whites have not perished? As a matter of fact the death-roll from *diagnosed* yellow fever has been exceedingly high; in the second place, there is no doubt whatever that a vast amount of yellow fever has passed *unrecognized* amongst the whites; in the third place, European whites have during the last decades taken measures which, without their being aware of it, protected them—they have lived to a certain extent segregated in larger and better houses, and the use of the mosquito net is now very general. Both these measures afforded a very great degree of protection; the remarkable comparative immunity which even partial segregation gives is well known to students of yellow fever. Were this not a well-recognized rule in connexion with all infectious diseases mankind would have long since disappeared.

The final proof that remittent and bilious remittent fevers are in a large number of instances the mild forms of yellow fever will be given when, by the destruction of the *Stegomyia* in West Africa, these fevers will, if my reasoning be correct, disappear in great part with yellow fever, precisely as they have done from Barbados, and from ships from the Southern States of America and from Spain.



